

CLAIMS

1. An RF communication network for communicating information comprising:

a plurality of remote receiving units, each of the remote receiving units

comprising:

a transmitter for transmitting direct sequence spread spectrum signals; and

a receiver for receiving frequency hopping spread spectrum signals;

a plurality of end point devices, each of the end point devices comprising:

a receiver for periodically receiving a direct sequence spread spectrum signal from at least one of the plurality of remote receiving units;

a decoder, the decoder using a spreading code and the received signal from the remote receiving unit to receive wake-up information and other data used to initiate a synchronous frequency hopping spread spectrum communication session with the remote receiving unit; and

a transmitter for transmitting data on the frequency hopping spread spectrum signal to the remote receiving unit.

2. The network of claim 1, wherein the RF communication network is an RF wireless meter reading network.

3. The network of claim 1, wherein the end point device is a transceiver connected to a utility meter in a wireless meter reading network, such that the transceiver is in communication with an encoder attached to the utility meter for transmission of data generated by the utility meter.

4. The network of claim 1, wherein the receiver of the end point devices is further capable of receiving frequency hopping spread spectrum signals from the remote receiving units after the initiation of the frequency hopping session.

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5. The network of claim 1, wherein the transmitter of the remote receiving units is further capable of transmitting frequency hopping spread spectrum signals to the end point devices after the initiation of the frequency hopping session.

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6. An RF communication network for communicating information comprising:

a plurality of remote receiving units, each of the remote receiving units comprising:

means for transmitting direct sequence spread spectrum signals; and

means for receiving frequency hopping spread spectrum signals;

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a plurality of end point devices, each of the end point devices comprising:

means for periodically receiving a direct sequence spread spectrum signal from at least one of the plurality of remote receiving units;

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means for using a spreading code and the received signal from the remote receiving unit to wake-up and receive data used to initiate a synchronous frequency hopping spread spectrum transmission session with the remote receiving unit; and

means for transmitting data on the frequency hopping spread spectrum
signal to the remote receiving unit.

7. The network of claim 6, wherein the RF communication network is an RF wireless meter
5 reading network.

8. The network of claim 6, wherein the end point device is a transceiver connected to a
utility meter in a wireless meter reading network, such that the transceiver is in communication
with an encoder attached to the utility meter for transmission of data generated by the utility
10 meter.

9. The network of claim 6, wherein the means for receiving at the end point devices is
further capable of receiving frequency hopping spread spectrum signals from the remote
receiving units after the initiation of the frequency hopping session.

10. The network of claim 6, wherein the means for transmitting at the remote receiving units
is further capable of transmitting frequency hopping spread spectrum signals to the end point
devices after the initiation of the frequency hopping session.

11. An RF communication network for communicating information comprising:
a plurality of meter reading units for collecting data generated by utility meters,
each of the meter reading units having

a receiver for periodically receiving a direct sequence spread spectrum signal;

a modulator for modulating the data into packets of data for later transmission on a frequency hopping spread spectrum carrier;

5 a decoder, the decoder using a spreading code and the received direct sequence spread spectrum signal to wake-up and receive data used to initiate a synchronous frequency hopping spread spectrum transmission session; and

a transmitter for transmitting data on the frequency hopping spread spectrum signal;

a plurality of remote receiving units, the remote receiving units being arranged in an array relative to the meter reading units such that each remote receiving unit can receive data from a plurality of said meter reading units and such that the data transmitted by most of said meter reading units can be received by at least a respective two of said remote receiving units, each remote receiving unit comprising:

a transmitter for transmitting a direct sequence spread spectrum signal to at least one of the plurality of meter reading units; and

a receiver for receiving the frequency hopping spread spectrum signal containing the data from the meter reading units.

12. The network of claim 11, wherein the receiver of the meter reading units is further capable of receiving frequency hopping spread spectrum signals from the remote receiving units after the initiation of the frequency hopping session.

5 13. The network of claim 11, wherein the transmitter of the remote receiving units is further capable of transmitting frequency hopping spread spectrum signals to the meter reading units after the initiation of the frequency hopping session.

10 14. A method of initiating a frequency hopping spread spectrum data transmission session from data received in a direct sequence spread spectrum signal, comprising the steps of:

15 transmitting from a remote receiving unit a direct sequence spread spectrum signal;

receiving at an end point device the direct sequence spread spectrum signal from the remote receiving unit;

decoding at the end point device the direct sequence spread spectrum signal such that the spreading code wakes up the end point device from low power mode, and such that the signal data begins a synchronous frequency hopping spread spectrum communications session with the remote receiving unit;

20 transmitting data from the end point device in a frequency hopping spread spectrum signal; and

receiving data at the remote receiving unit in the frequency hopping spread spectrum signal from the end point device.